Introduction to Lean Construction
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Understand Each "S" in Detail - Sort, Set in Order, Shine

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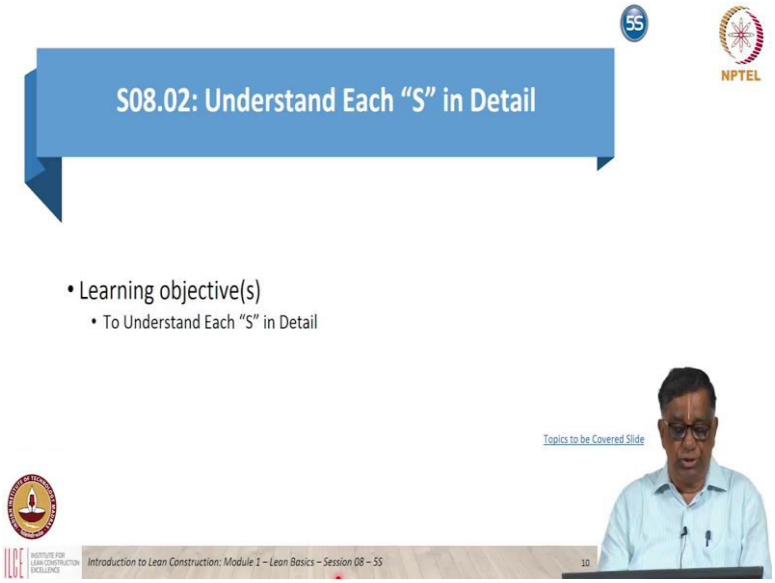

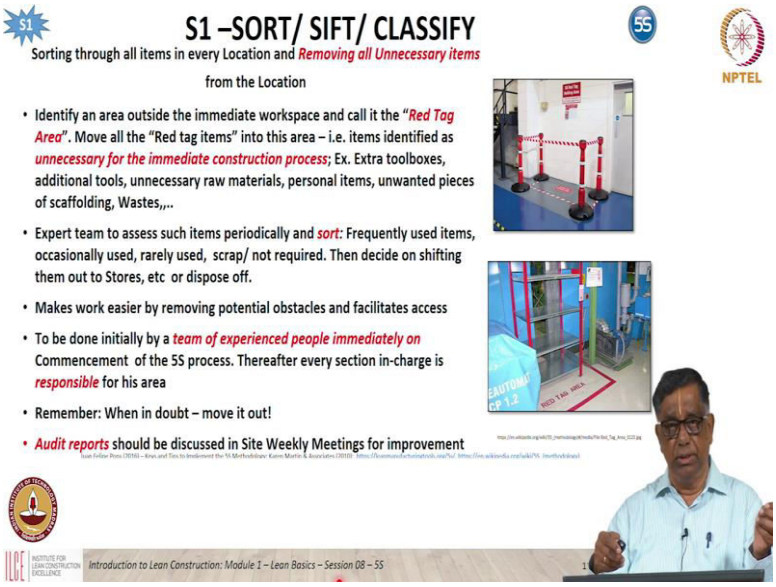

Now, we look at the next section where we look at each "S" in greater detail. The first one of course, is sort, sift, or classify. So, initially what we do, we look at all the items or the site and remove whatever is not required in the near future. So, we identify an area called red tag item, red tag area. So, physically we mark out the area at the side, maybe take a tape around that and put a red tag on that and whichever items are not required in the near future, we tie a red tag to it.

So, people can identify easily that it is not required in the near future and that we take it all and put it in the red tag area. And periodically an expert team comes and looks at all the items in the red tag area and they determine if something can be moved back to the site or something is useful in the near future or distant future or not so often, and depending on the frequency of its requirement, it is kept near the site or away from the site.

And something which is not required at all, something like scrap for example, that the team decides how to dispose it off once for all. So, by doing that, we are removing the potential obstacles from the site and making it easier to access. And initially, you may require an expert team to determine what is useful, what is not useful. And remember, whenever you are in doubt, take it out.

Do not have any hesitation about whether this will be useful in the near future or not. If you are in doubt, take it out. You can always bring it back if it is good to be useful later. And then of course, we conduct frequent audits and the audit reports should be reviewed in the various site meetings to see what action has to be taken further to improve our process.

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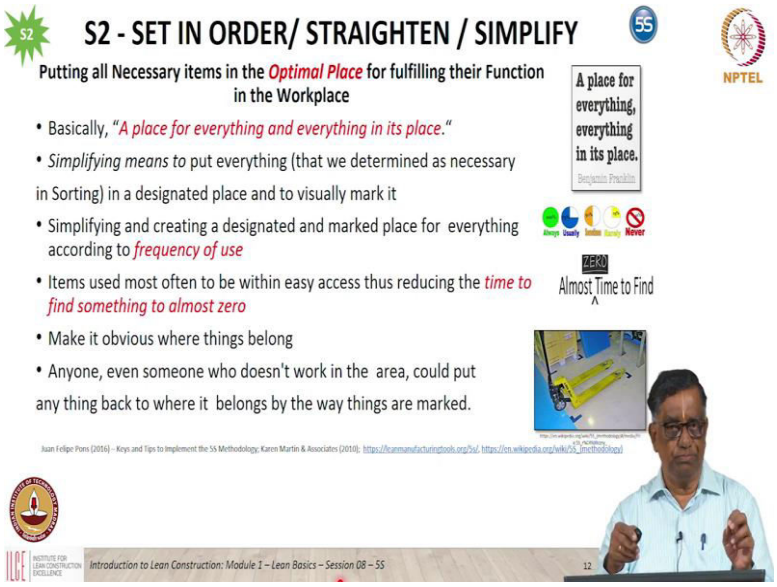

The second S, we have is set in order or straighten, I like the word called simplify, it really simplifies the way we work at site, that is whatever items you determine in the first step the first S as something which is required that has to be kept in a proper place in the site. So, the favourite verb we say is, "A place for everything and everything in its place", that is the key to the whole thing. So, we simplify everything.

The way we keep it at the site, we are able to access immediately, that means we need to have a designated place for whichever items you determine as required in the near future and keep it in the right place and wherever you take it out for usage, please remember to put it back in the same place. And many times, what we do for many tools, we have for example, what they call silhouette boards and all that, I will explain to you later.

And again, the place where you keep the things depends on the frequency of use, that which you require often you keep it nearby, that which you do not require that often logically, you have to keep it further away. And then wherever you want to keep it, wherever you have marked a place make it obvious, for example, a spanner with a silhouette board on that cannot be put in any other place it has to be put only in that particular place.

So, a place for everything and everything in his place that has to be thought out systematically and implemented. And then for example, if you give a tool to a particular person and tell him to go and put it back in the store, when he goes to the store, he should know immediately where this tool belongs, there is a place mark for it, is very obvious and he keeps it in that place and comes off. That is the key to the whole thing.

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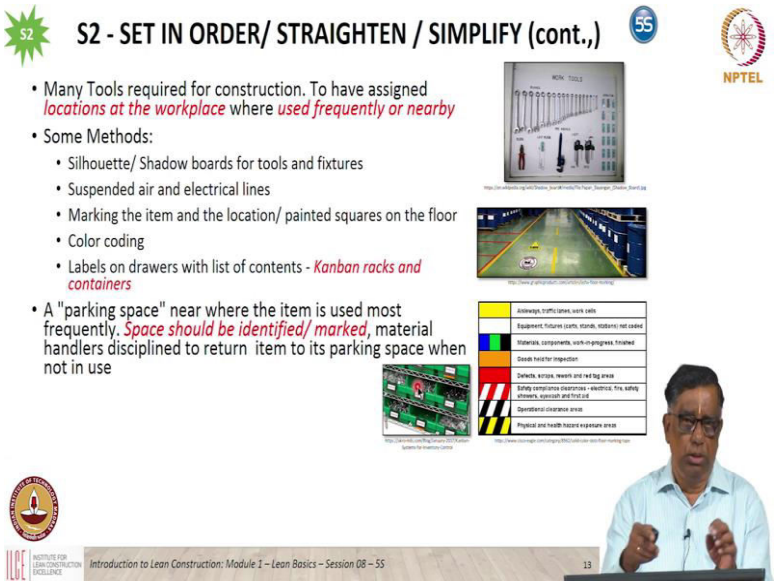

And many tools which are required like I said, we need to keep them in the proper place. For example, this is S what you called that silhouette board. So, a silhouette board is what you are seeing here like this. So, it has got the outlines the shapes of all the tools marked on that or you can keep boxes marked on the floor where a particular item has to go. Or you can have colour coding for the various elements. And you can have containers with colours marked on that.

And your tool also has the same colour so exactly where it has to go. So, the basic idea is you have to have apply your ingenuity, be very smart and thinking. How to make sure that a particular tool or a or an element or a material goes through right place where it belongs. And there is a beautiful system called Kanban. I will again explain that a bit later.

And something which is required very often for example, a particular spanner which you may use very frequently in your work that of course, cannot be kept in a distant location. So, it may have to have a parking place, like you work on the spanner keep it as a parking place, come back again and you require it, again the space should be clearly marked that this is a parking place for this particular tool, it does not belong there in the long run, it will go back to the right place, but in the near usage, you have a parking place.

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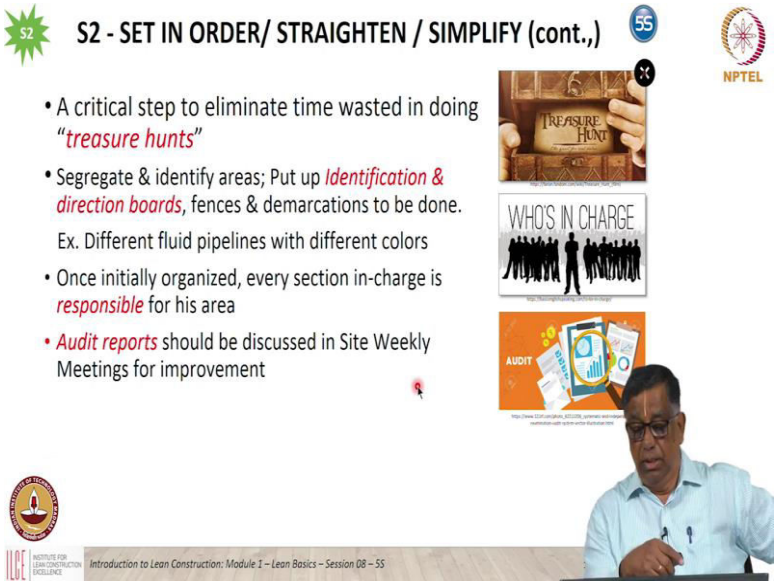

The basic idea is that when you need a particular tool or a particular material, you do not go on searching, I have seen people searching for materials, searching for tools, I think they waste so much time, we call it a treasure hunt, please do not embark on any treasure hunt, we need to be able to locate them as quickly as possible. Another important part of S2 is having good direction boards, sign boards.

People should know each area, what is being done in that area. And then there should be overall maps for the entire site area. So, people know how to reach a particular location, scrap yard is marked so, bar bending yard is marked so, carpentry yard is marked so, like that. So, everybody knows how exactly the site is organized.

So, once it is properly organized, the section in charge, they need to make sure that it is maintained properly in the long run. And of course, like we do for S1, we also need to do audits at regular intervals and the audit reports need to be discussed in the site meetings and we need to check where we stand and keep improving all the time.

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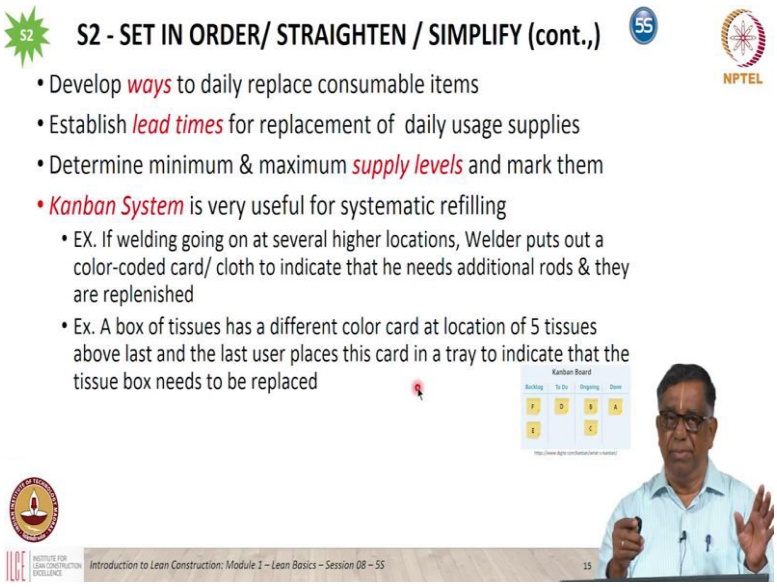

So, it has got many other dimensions and this is where the Kanban part comes in. We have many consumables which we use periodically in the site. When you record a particular item, at that time you should not have to go on refill that. So, the mornings, we as soon as we come to the site, we make sure we look at all the consumables and then get them properly refilled. And we have enough stock for to last for the day.

How do we do that in a simpler way? For example, you have a container which is marked with the full mark, halfway mark, and say quarter bar mark. So, when the level comes to the quarter way mark for example, we know that we will require to refill in the near future. So, Kanban system is something like that, we have a visual indicator to tell us when we will require something to be replenished, something to be got more.

For example, you might have seen a power plant construction site where you have the builders working at number of different heights in the power, for example, a boiler supporting structure and the morning they take a number of building rods, but they do run out of building rods from time to time. So, if you are not carrying cell phones for example, that guy will have to come down all the way down to ground floor, go to the stores, pick up additional stocks and so on.

Instead of doing that he just takes out a colour cloth for example, he is about 25 percent only balance left out, he puts a blue cloth for example on his workplace and there are several other similar builders who may put out different colour cloths. And somebody watching from the ground level, he knows that a welder at this place requires some rods another person requires maybe after some time.

So, somebody can go around replenishing the stocks, a very easy way of doing, or for example, at home you use tissues in a box. So, when you have only 5 tissues left out, you have a different coloured tissue for them for example, for the moment you see that different coloured tissue that we need to replace a box soon. So, Kanban works like that, it is an excellent tool is part of S2 and we need to practice that.

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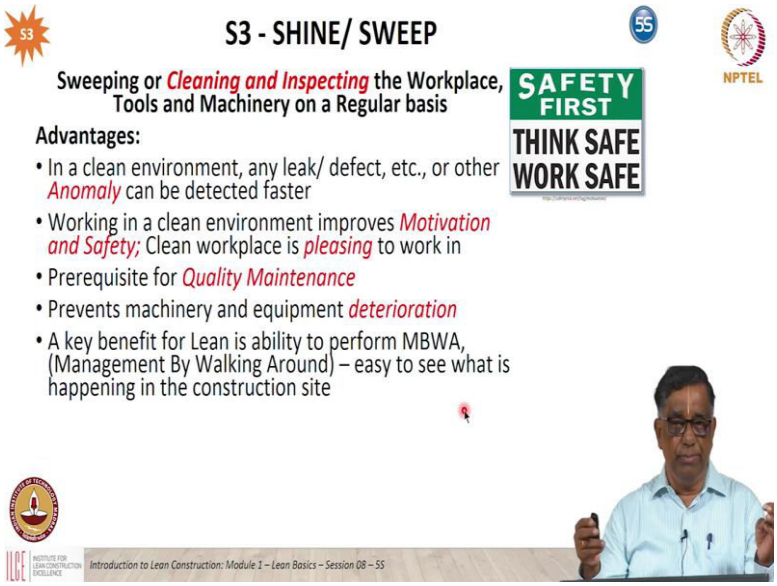

The next S we look at is S3, which stands for shining or sweeping, is basically clean to inspect, clean to inspect the workplace, the tools and the machinery. So, the advantage is in a clean environment any defect for example can be identified very easily. And working in a clean environment actually is a big morale booster. People like to work in a clean environment and then also promotes safety the long run because things are easy to look at, easy to identify, and any anomaly becomes visible immediately.

For quality maintenance for example, is a prerequisite. And it also prevents deterioration and damage, getting damaged in the long run for all machinery, and tools and tackles and so on. So, a key benefit in lean is something called MBWA, Management By Walking Around, we call it the Gemba walk. So, you go around the site, and look at various things and see how things are being done.

And when things are properly shown and cleaned up and easy to inspect, you have, at a glance exactly how the site is running. I am sorry to say that, but if you look at a typical Indian site, and you go abroad and look at a typical, well-run site, by an international level company, there is a huge difference, you can see that very, very clearly. So, we need to reach that kind of standard, when everything is properly kept clean, orderly manner, and well organized, that is the key to, that is a benchmark for a top-class construction company.

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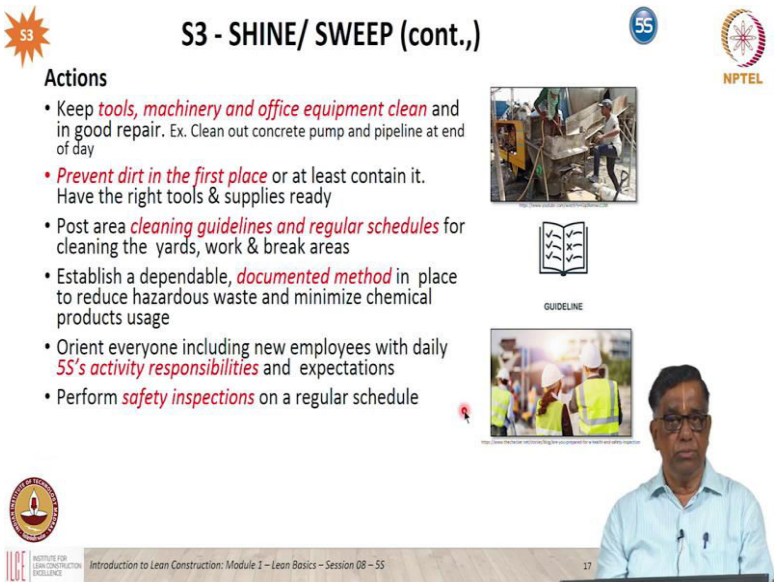

Then we also look at the place where the things are being stored, whether the place itself is clean or not, apart from your tools and materials, the basic the stores or the cupboards or the bins, they also need to be kept clean from time to time. And we need to have also proper guidelines, we can say easily that place has to be cleaned properly.

But what are the exact methodology for cleaning? What is the frequency of cleaning? What tools do you use? What cleaning agents you use? All that has to be spelled out in our S4 which will come see later in the standardization part. So, we need to have the defendable documented method by which everyone will adopt the same standard procedures.

And we also need to have proper inspections from time to time to make sure that the cleaning, shining are all properly done. And like I said, they also promote safety. And so, S3 is a part of safety inspections as well.

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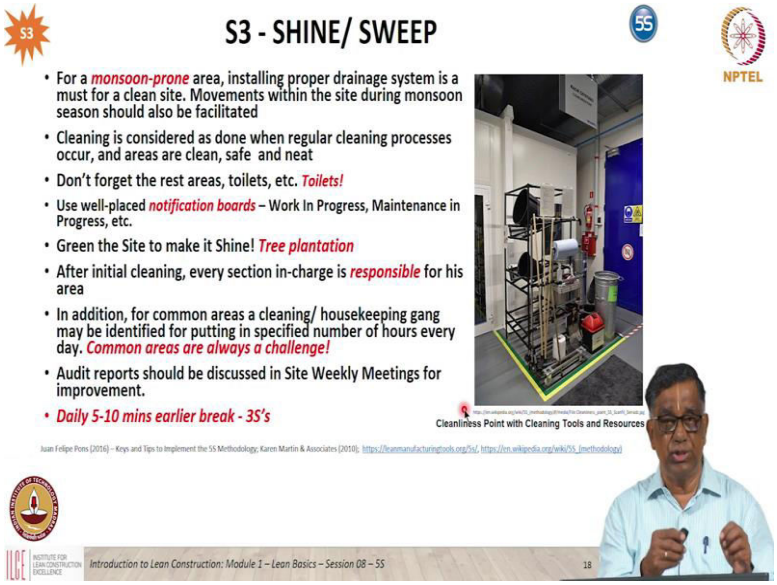

And wherever you have monsoons for example, like Mumbai or Maharashtra, where you have very heavy monsoons, we need to make sure that we have the site properly organized for working in the monsoon areas. We had been to the Kolhapur site of Godrej for example, there they had done the proper drains in the first place and proper slopes, and then the water disposal areas, how to take it out into the general the area drains and so on. So, even that is part of S3.

How do we organize a side by which it becomes automatically clean, even when you have very heavy rains. And the like I said about earlier about cleaning the various areas. And you should also include the toilets, do not forget that. I always maintained that the standard of a company you can make out or even other a house you can make out the way they maintain their toilets.

If the toilets are well cleaned and well-maintained, smell free and so on, then you are looking at a high level with proper care for the working environment and so on. And we need to have many notification boards and then make the site look green and nice. What are the first things major project people do is to plant trees around the area, have sufficient greening and well laid out roads with proper notice boards, access maps, where to go where not to go to, so there a number of things we need to look at as part of S3, which determined whether the site looks orderly or not, and looks properly clean and well-maintained.

The common areas are always a challenge. You will have a number of sections and each section in charge holds responsibility for his part, but who looks at the common area, that

again properly has to be defined by the project manager. And all these 3 S's we talked about sort, set in order, shine, we need to allocate a certain amount of time every day.

It has to become part of our working environment, say the last 10 minutes or last 15 minutes or every shift, so much of time we take out and make sure that the 3 S's are done properly in our work area. It has to be ingrained in our way of working and so we never miss it out. It is always done.

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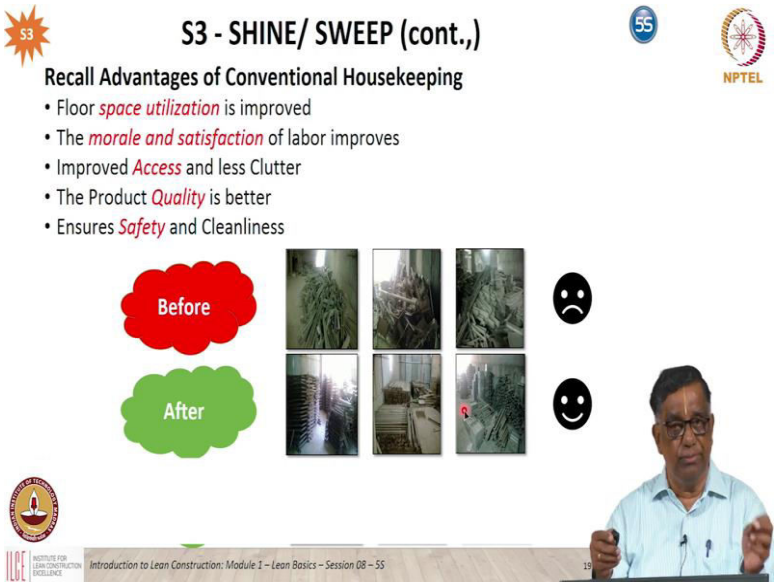

And then once you do all this, it also is tied up with what is called good housekeeping. Major companies they pay a lot of attention to housekeeping, housekeeping has got a number of advantages, as you all may be knowing, you have better space utilization, because things are well ordered, there are no obstacles, easy access, and so on. And people working in site areas they feel happy, they have high morale, and they feel happily satisfied.

And then even the quality also turns out to be better. You cannot work in a bad area, badly cluttered, dirty, not cleaned, and so on, and we expect good quality of work. So, you see the company, the factories where good quality work is being turned out, you spick and span, absolutely clean, well ordered, well maintained.

So, we need to have that kind of standards. And you can look at something before you apply S3 and after you apply S3, there can be a significant difference, which anybody can see. That is the advantage of S3. And 5S in general, visual management, you can walk into a 5S site and immediately know that is a 5S site. That is the advantage.

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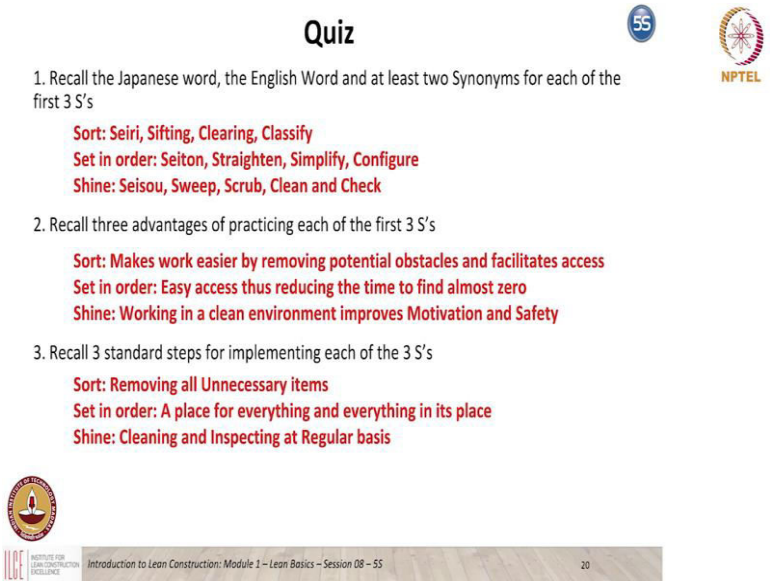

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